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10/500,572

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Akihiro Shimada

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SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

NGUYEN, HANH N

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte AKIHIRO SHIMADA

Appeal 2009-002281
Application 10/500,572
Technology Center 2800

Decided: September 4, 2009

Before MARC A. HOFF, CARLA M. KRIVAK, and THOMAS S. HAHN,
Administrative Patent Judges.

KRIVAK, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1 and 2. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Appellant's claimed invention is a cooling structure for a magnetic bearing apparatus used in a spindle unit of a machine tool (Spec.1:2-5). A cooling wind producing means provides a low-temperature cooling wind using ultrahigh speed rotation of a rotary member (Spec. 3:4-5).

Independent claim 1, reproduced below, is representative of the subject matter on appeal.

1. A magnetic bearing apparatus comprising:

a rotatable rotary member in which a radial magnetic bearing rotor and an axial magnetic bearing disc are secured to a rotary shaft; electromagnets that are arranged around said rotary member via a small gap; and a case housing them, wherein

said apparatus further comprises: cooling wind producing means for producing cooling wind of a low temperature using a driving force of said rotary member; and a cooling wind flow path through which the low-temperature cooling wind produced by said cooling wind producing means is to flow into said magnetic bearing apparatus.

REFERENCES

Millman	US 3,690,317	Sept. 12, 1972
Traxler	US 5,720,160	Feb. 24, 1998
Muszynski	US 5,814,908	Sept. 29, 1998

The Examiner rejected claim 1 under 35 U.S.C. § 103(a) based upon the teachings of Traxler and Muszynski.

The Examiner rejected claim 2 under 35 U.S.C. § 103(a) based upon the teachings of Traxler, Muszynski, and Millman.

Appellant contends that neither Traxler nor Muszynski disclose a “cooling wind producing means for producing cooling wind of a low temperature with [sic] using a driving force of said rotary member” (App. Br.8; Reply 4-5). Appellant further contends that combining Traxler with Muszynski would result in a magnetic bearing apparatus having a separate ventilating apparatus and the production of the cooling wind would not be based on the driving force of a rotary member that “constitutes a magnetic bearing apparatus” (App. Br. 8). That is, a rotary member of a separate apparatus would produce a cooling wind (App. Br. 8). Appellant also asserts that Millman cannot be combined with Traxler and Muszynski because it is directed to a “totally different technology area than that of the other applied references,” i.e., a specialized device in the medical field (App. Br. 9; Reply 6).

ISSUE

Has Appellant established that the Examiner erred in combining Traxler and Muszynski to obtain a magnetic bearing apparatus having a cooling wind producing means that is part of the magnetic bearing apparatus?

Has Appellant established that the Examiner incorrectly combined Millman with Traxler and Muszynski because it is a specialized device in the field of medicine?

FINDINGS OF FACT

1. Appellant’s claimed invention teaches a cooling structure for a magnetic bearing apparatus. A cooling wind producing means includes fins

15 (Fig. 1; Spec. 12:10-12) and a generator (converter means) 16 separated from the fins by an appropriate gap (Fig. 1; Spec. 12:13-15).

2. Traxler teaches a vacuum centrifuge having magnetic bearings (Abstract). The magnetic bearing apparatus includes a hollow member that is a rotatable rotary member 2.5 (Fig. 2), a radial magnetic bearing disc 2.2.1 and 2.2.2 (Fig. 2), and an axial magnetic bearing 2.3 (Fig. 2; col. 5, ll. 5-42).

3. Muszynski teaches providing ventilating air into a housing for an electric machine. Ventilating air is communicated through an axial aperture in a hub. (Abstract) A blower wheel 100 rotates to draw ventilating air along and between rotating main blades 120 and directs the air into a vortex pattern (col. 3, ll. 54-62). A portion of the ventilating air is drawn into an axial ventilating air inlet 120 at the center of the hub and a portion of the ventilating air is expelled between the rotating main blades 130 (col. 3, ll. 62-65).

4. Millman teaches a valve member 59 (Fig. 1) adapted to move relative to the inlet of a fitting 44, the valve member varying the effective flow area of the fitting (col. 2, ll. 45-52). In addition, pressurized air in Millman's device follows a vortex path to an outlet (col. 6, ll. 63-67).

PRINCIPLES OF LAW

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. *See In re Kahn*, 441 F.3d 977, 987-988 (Fed. Cir. 2006), *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”

KSR Int’l Co. v. Teleflex Inc., 550 U.S. 398, 418 (2007)

“If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”

Id. at 406

The test for non-analogous art is first whether the art is within the field of the inventor's endeavor and, if not, whether it is reasonably pertinent to the problem with which the inventor was involved. *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979). A reference is reasonably pertinent if, even though it may be in a different field of endeavor, it logically would have commended itself to an inventor's attention in considering his problem because of the matter with which it deals. *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992).

ANALYSIS

The Examiner’s rejection of claim 1 states that Traxler teaches all the elements of claim 1 except for the cooling wind producing means for producing cool wind of a low temperature using a driving force of a rotary member (Ans. 4). The Examiner finds that Muszynski teaches an electric machine including these features. That is, Muszynski teaches a blower wheel 100 (cooling wind producing means) and a hub 110 that includes

blades 130, 140 on an outer radial edge 115 (driving force of the rotary member) (col. 3, ll.16-21; col. 3, l. 54-col. 4, l. 3; Figs. 1-3). Thus, it would be obvious to modify Traxler by mounting the cooling means of Muszynski to the rotary member to produce wind (Ans. 6).

Appellant urges that although Muszynski discusses a magnetic bearing apparatus, it “is an entirely separate mechanism for providing ventilating air into a housing of another machine” (Reply Br. 5). Thus combining Traxler and Muszynski would produce a magnetic bearing apparatus having a separate apparatus for providing ventilation to the magnetic bearing apparatus and not a “self-cooled” magnetic bearing (Reply Br. 5). Specifically, Appellant asserts that the production of a cooling wind in the combination device “would not be based on the driving force of a rotary member that constitutes a magnetic bearing apparatus (but, instead would be based on the rotary member of a separate apparatus)” (Reply Br. 5).

However, as noted by the Examiner, the mechanism for providing ventilating air in Muszynski is not an entirely separate mechanism (Ans. 6). Further, mounting Muszynski’s cooling means to the rotary member of the magnetic bearing apparatus of Traxler to produce a cooling wind is merely a combination of familiar elements according to known methods that does no more than yield predictable results. *KSR* 550 U.S. at 418. Once Muszynski’s cooling means is mounted to Traxler’s magnetic bearing apparatus the apparatus would then include the rotary member and cooling wind producing means, contrary to Appellant’s assertion (App. Br. 8). Thus, Appellant has not provided evidence to defeat the Examiner’s prima facie case of obviousness of claim 1 over the teachings of Traxler and Muszynski.

Appellant argues that the rejection of claim 2 over Traxler, Muszynski, and Millman cannot stand because claim 2 depends from claim 1 and Millman does not cure the deficiencies of Traxler and Muszynski (Reply Br. 6). Further, Appellant contends, Millman is directed to “totally different technology” (Reply Br. 6). That is, Millman teaches a medical device, specifically a nebulizer (App. Br. 9). As noted by the Examiner, however, Millman was cited because it is reasonably pertinent to the particular problem the Appellant is concerned. That is, the control valve of Millman controls a flow speed of wind (FF 4), as does the control valve recited in claim 2 (Ans. 7). Thus, the control valve of Millman, although in a different technology, is reasonably pertinent to the problem of controlling a flow speed of wind, which, because of its speed, provides a cooling wind. Therefore, it logically would have commended itself to an inventor's attention in considering this problem. *See In re Wood* and *In re Clay, supra*. Accordingly, claim 2 is obvious over the collective teachings of Traxler, Muszynski, and Millman.

CONCLUSION

Appellant has not established that the Examiner erred in combining Traxler and Muszynski to obtain a magnetic bearing apparatus having a cooling wind producing means that is part of the magnetic bearing apparatus.

Appellant has not established that the Examiner incorrectly combined Millman with Traxler and Muszynski because it is a specialized device in the field of medicine.

Appeal 2009-002281
Application 10/500,572

DECISION

The Examiner's decision rejecting claims 1 and 2 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KIS

SUGHRUE-265550
2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213